

IN THE CLAIMS:

The status of the claims is as follows:

1. - 35. (canceled).

36. (previously presented) An information reproducing apparatus comprising:

a light source for generating linearly polarized light;

a medium having an information unit field and a plurality of linear marks disposed in the information unit field in overlapping relation to one another and extending in different directions from one another;

an optical head disposed between the light source and the medium, the optical head having a fine aperture;

polarized light control means for controlling the linearly polarized light generated by the light source to pass through the fine aperture of the optical head to generate near-field light having a preselected polarization direction and to irradiate the linear marks in the information unit field of the medium with the near-field light so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of each of the linear marks;

a detector for detecting light scattered by the linear mark irradiated with the near-field light; and

a signal processing circuit that processes a signal from the detector corresponding to the detected scattered light, the signal processing circuit having a control circuit having a head drive circuit for carrying out access/tracking control of the optical head and a read data output control circuit for outputting read data.

37. (canceled).

38. (previously presented) An information reproducing apparatus according to claim 36; wherein the signal processing circuit acquires data in accordance with an intensity of the signal from the detector corresponding to the detected scattered light.

39. (previously presented) An information reproducing apparatus according to claim 36; wherein the plurality of linear marks comprise a plurality of linear data marks and a plurality of tracking marks disposed in overlapping relation to the plurality of linear data marks; and wherein the signal processing circuit has a difference circuit that calculates a difference of signals for tracking and a read data signal processing circuit for processing a signal for data access, the difference circuit providing to the head drive circuit signals that control a head drive actuator that drives the optical head.

40. (canceled).

41. (previously presented) An information reproducing apparatus comprising:

a light source for generating linearly polarized light;

a medium having an information unit field and a plurality of linear marks disposed in the information unit field in overlapping relation to one another and extending in different directions from one another;

an optical head disposed between the light source and the medium, the optical head having a fine aperture;

polarized light control means for controlling the linearly polarized light generated by the light source to pass through the fine aperture of the optical head to generate near-field light and to irradiate the linear marks disposed in the information unit field of the medium with the near-field light, and for controlling a direction of polarization of the near-field light so that the direction of polarization of the near-field light irradiated on the linear marks is orthogonal to a longitudinal axis of each of the linear marks;

a detector for detecting light scattered by the linear marks irradiated with the near-field light; and

a signal processing circuit that processes a signal from the detector corresponding to the detected scattered

light, the signal processing circuit having a control circuit having a head drive circuit for carrying out access/tracking control of the optical head and a read data output control circuit for outputting read data.

42. (previously presented) An information reproducing apparatus according to claim 41; wherein the signal processing circuit acquires multiple value data from the signal.

43. (previously presented) An information reproducing apparatus according to claim 41; wherein the plurality of linear marks comprise linear data marks and a plurality of tracking marks disposed in overlapping relation to the plurality of linear data marks; and wherein the signal processing circuit has a difference circuit that calculates a difference of signals for tracking and a read data signal processing circuit for processing a signal for data access, the difference circuit providing to the head drive circuit signals that control a head drive actuator that drives the optical head.

44. (canceled).

45. (previously presented) An information reproducing apparatus comprising:

a medium having a plurality of information unit fields and a plurality of linear marks disposed in each of the information unit fields in overlapping relation to one another and extending in different directions from one another;

an optical head disposed over the medium and having a fine aperture;

light generating means for generating linearly polarized light and directing the linearly polarized light through the fine aperture of the optical head to generate near-field light and to irradiate at least one of the linear marks in the information unit fields of the medium with the near-field light;

control means for controlling a direction of polarization of the near-field light so that the direction of polarization of the near-field light irradiated on the at least one linear mark is orthogonal to a longitudinal axis of the at least one linear mark;

detecting means for detecting light scattered by the linear mark irradiated with the near-field light; and

signal processing means for processing a signal from the detecting means corresponding to the detected scattered light, the signal processing means comprising a control circuit having a head drive circuit for carrying out access/tracking control of the optical head and a read data output control circuit for outputting read data.

46. (canceled)

47. (previously presented) An information reproducing apparatus according to claim 45; wherein the plurality of linear marks comprise a plurality of linear data marks and a plurality of tracking marks disposed in overlapping relation to the plurality of linear data marks; and wherein the signal processing means further comprises a difference circuit that calculates a difference of signals for tracking and a read data signal processing circuit for processing a signal for data access, the difference circuit providing to the head drive circuit signals that control a head drive actuator that drives the optical head.

48. (canceled).

49. (previously presented) An information reproducing method, comprising the steps of:

providing a medium having a plurality of information unit fields and a plurality of linear marks disposed in each of the unit fields in overlapping relation to one another and extending in different directions from one another;

generating near-field light by directing linearly polarized light through a fine aperture of an optical head;

irradiating at least one of the linear marks in the respective information unit field of the medium with the near-

field light while controlling a direction of polarization of the near-field light so that the direction of polarization of the near-field light irradiated on the at least one linear mark is orthogonal to a longitudinal axis of the at least one linear mark;

detecting light scattered by the linear mark irradiated with the near-field light; and

processing a signal corresponding to the detected scattered light including carrying out access/tracking control of the optical head and outputting read data.

50. (canceled)

51. (previously presented) An information reproducing method according to claim 49; wherein the plurality of linear marks comprise a plurality of linear data marks and a plurality of tracking marks disposed in overlapping relation to the plurality of linear data marks; and further comprising the steps of calculating a difference of signals for tracking and processing a signal for data access, and providing to the head drive circuit the processed signal to control a head drive actuator that drives the optical head.

52. (canceled).

53. (previously presented) An information reproducing apparatus according to claim 36; wherein each of the linear marks comprises a projection having a linear edge; wherein the near-field light irradiates each projection so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each projection; and wherein the detector detects light scattered by the linear edge of each projection irradiated with near-field light.

54. (previously presented) An information reproducing apparatus according to claim 36; wherein each of the linear marks comprises a groove having a linear edge formed in the medium; wherein the near-field light irradiates each groove so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each groove; and wherein the detector detects light scattered by the linear edge of each groove irradiated with near-field light.

55. (previously presented) An information reproducing apparatus according to claim 36; wherein each of the linear marks comprises a plurality of substances having a linear interface and formed in a planar surface of the medium, the substances having a different optical property from that



of the medium; wherein the near-field light irradiates each substance so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear interface of each substance; and wherein the detector detects light scattered by the linear interface of each substance irradiated with near-field light.

56. (previously presented) An information reproducing apparatus according to claim 55; wherein the different optical property is a different refractive index.

57. (previously presented) An information reproducing apparatus according to claim 41; wherein each of the linear marks comprises a projection having a linear edge; wherein the near-field light irradiates each projection so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each projection; and wherein the detector detects light scattered by the linear edge of each projection irradiated with near-field light.

58. (previously presented) An information reproducing apparatus according to claim 41; wherein each of the linear marks comprises a groove having a linear edge formed in the medium; wherein the near-field light irradiates each groove so that the preselected polarization direction of

the near-field light is orthogonal to a longitudinal axis of the linear edge of each groove; and wherein the detector detects light scattered by the linear edge of each groove irradiated with near-field light.

59. (previously presented) An information reproducing apparatus according to claim 41; wherein each of the linear marks comprises a plurality of substances having a linear interface and formed in a planar surface of the medium, the substances having a different optical property from that of the medium; wherein the near-field light irradiates each substance so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear interface of each substance; and wherein the detector detects light scattered by the linear interface of each substance irradiated with near-field light.

60. (previously presented) An information reproducing apparatus according to claim 59; wherein the different optical property is a different refractive index.

61. (previously presented) An information reproducing apparatus according to claim 45; wherein each of the linear marks comprises a projection having a linear edge; wherein the near-field light irradiates each projection so that the preselected polarization direction of the near-field

light is orthogonal to a longitudinal axis of the linear edge of each projection; and wherein the detecting means detects light scattered by the linear edge of each projection irradiated with near-field light.

62. (previously presented) An information reproducing apparatus according to claim 45; wherein each of the linear marks comprises a groove having a linear edge formed in the medium; wherein the near-field light irradiates each groove so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each groove; and wherein the detecting means detects light scattered by the linear edge of each groove irradiated with near-field light.

63. (previously presented) An information reproducing apparatus according to claim 45; wherein each of the linear marks comprises a plurality of substances having a linear interface and formed in a planar surface of the medium, the substances having a different optical property from that of the medium; wherein the near-field light irradiates each substance so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear interface of each substance; and wherein the detecting means detects light scattered by the linear interface of each substance irradiated with near-field light.

64. (previously presented) An information reproducing apparatus according to claim 63; wherein the different optical property is a different refractive index.

65. (previously presented) An information reproducing method according to claim 49; wherein each of the linear marks comprises a projection having a linear edge; wherein the irradiating step comprises irradiating each of the projections with near-field light so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each projection; and wherein the detecting step comprises detecting light scattered by the linear edge of each projection irradiated with near-field light.

66. (previously presented) An information reproducing method according to claim 49; wherein each of the linear marks comprises a groove having a linear edge formed in the medium; wherein the irradiating step comprises irradiating each of the grooves with near-field light so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each groove; and wherein the detecting step comprises detecting light scattered by the linear edge of each groove irradiated with near-field light.

67. (previously presented) An information reproducing method according to claim 49; wherein each of the linear marks comprises a plurality of substances having a linear interface and formed in a planar surface of the medium, the substances having a different optical property from that of the medium; wherein the irradiating step comprises irradiating each of the substances with near-field light so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear interface of each substance; and wherein the detecting step comprises detecting light scattered by the linear interface of each substance irradiated with near-field light.

68. (previously presented) An information reproducing method according to claim 67; wherein the different optical property is a different refractive index.